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servations are numerous and accurate. They lend solid support to the conclusions he advances, the most interesting of which are as follows: 1. The Basques present a definite physical type not encountered elsewhere in Europe and limited to their linguistic boundaries. 2. There is sufficient evidence that they migrated into France from the Iberian peninsula since the fall of the Roman Empire, and therefore the ancient Aquitanians, Ligurians, etc., were not Basques, as has so often been maintained. 3. The general anatomical peculiarities of the Basques separate them distinctly from the Asiatic or Mongolian type, and stamp them as European. 4. Their earliest home must have been in some part of the Iberian peninsula, but there is no proof that they at any time occupied all of it. Nor is it possible to say that the Basque was the primitive speech of this people. It may have been forced upon them by some conquering tribe now disappeared.

THE TOLTECS IN FABLE AND HISTORY.

THERE are still some writers who believe in the fabulous 'Empire of the Toltecs,' the shadowy realm which in Mexican myth extended its dominion over vast areas and millions of men. The historical aspects of the question are examined anew by Dr. P. J. J. Valentini in the *Zeitschrift für Ethnologie*, No. 1, 1896.

He begins by denying the legends of the Mexican chroniclers. 'There was neither an empire, nor a nation, nor a language of the Toltecs.' He pursues his inquiry along the line principally of the Mayan traditions, and analyzes with acuteness the confused accounts they have preserved. Evidently to them, Tulan or Tula was a sort of generic term and was applied to various localities. Although usually derived from the Nahuatl, it may also be explained from Mayan radicals, with equal if not greater appropriateness. In a later and general sense he be-

lieves that it answered to the notion of town or city, as contrasted to country, and consequently of all that is civil and urbane as opposed to rustic; just as we see in these Latin terms.

The article is accompanied with a map showing the location of tribes and towns in Chiapas and vicinity, and its arguments will aid in clearing away many visionary notions about this alleged ancient people.

D. G. BRINTON.

SCIENTIFIC NOTES AND NEWS.

ASTRONOMY.

THE observatory of Yale University has published the fifth part of the first volume of its 'Transactions.' It contains the results of a heliometric triangulation of the principal stars of the cluster in Coma Berenices by Dr. F. L. Chase. The final result is a catalogue of the places of thirty-three stars for the epoch 1892.0.

IN the *Astronomical Journal* of June 29th Dr. See communicates the elements of the orbits of forty binary stars computed by himself. The table of elements is of interest because all the orbits have been obtained by a nearly uniform process. Dr. See finds that the average eccentricity of the forty stars considered is 0.45, but he draws no other general conclusions as to the general characteristics of binary star orbits.

IN the *Astronomical Journal* of July 8th Dr. S. C. Chandler publishes his third catalogue of variable stars. Progress in this department of astronomical science has been so rapid of late, that it has not been possible to keep pace with new discoveries by merely issuing supplements to the former catalogue of variables. The following paragraph of Dr. Chandler's introduction to his catalogue is not without interest. Dr. Chandler says:

"Very few stars within reach of the astronomers of the northern hemisphere, who have so actively devoted their energies to this class of work, have been seriously neglected. It is especially interesting to note the fact that this harmonious development has been obtained without any concerted scheme of 'cooperation,' but by the free will and independently planned

efforts of individual volunteers, each discriminatingly directing his work in accordance with his means and situation. Such a satisfactory result could hardly have been reached so effectively by a formal organization of work, directed from headquarters prescribing and circumscribing the operations of each participant, and destroying, by its benumbing influence, the enthusiasm which springs from the individual initiative of the observers themselves."

We are inclined to ascribe this paragraph to Dr. Chandler's modesty, for there can be no doubt that the satisfactory progress of variable star astronomy in the United States has been the result of just such cooperation as Dr. Chandler mentions. And the supervision of the whole work has been largely in his own hands. We do not think he has had a 'benumbing influence' on the observers. Variable star astronomy furnishes a conspicuous example of the benefits to be derived from intelligent cooperation, acting with the advice or informal direction of a competent central authority.

PROF. HELMERT, director of the Central Bureau of the International Geodetic Commission, has issued a circular concerning the proposed operations for the more complete study of the variation of terrestrial latitudes. It will be remembered that the International Commission has had under consideration a project for the establishment of four latitude stations on the same parallel of latitude, but distributed in longitude as nearly as possible equally around the earth. No definitive decision has been reached in the matter, but the present circular is accompanied with a carefully prepared paper by Prof. Albrecht, dealing with the question of the best possible selection of stations for the proposed work. It appears from Prof. Albrecht's paper that the best results will be secured if two of the stations are located in the United States, one in Japan and the other in or near the island of Sicily.

H. J.

THE DAVY-FARADAY RESEARCH LABORATORY.

IN the issue of *Nature* of July 2d will be found an account of the laboratory for research in physics and chemistry presented to the Royal Institution by Dr. Ludwig Mond. Dr. Mond

formally transferred to the managers of the Royal Institution, on June 12th, a building adjoining the Institution which has been arranged and equipped with the necessary apparatus for the most exact investigation.

The Laboratory contains on the basement a room for thermochemical research; a room for pyrochemical research; mechanics' workshop; room for electrical work; battery of twenty-six accumulators; constant temperature vaults; boiler-house and store-rooms. On the ground floor, a room for research in organic chemistry; a room for research in inorganic chemistry; a fire-proof room for experiments in sealed tubes; a balance room; entrance hall and cloak room. On the first floor, the Honorary Secretary's room; a large double library connected with the library of the Royal Institution. On the second floor, a museum of apparatus. On the third floor, seven rooms for research in physical chemistry. On the fourth floor, a room for inorganic preparations; a room for organic preparations; a photographic room; four rooms for researches in physical chemistry. On the roof, an asphalted flat with a table, gas and water.

Dr. Mond has not only furnished the laboratory with the most modern instruments and appliances for research in pure and physical chemistry, but he has also placed in the hands of the managers of the Royal Institution an ample annual endowment, so that the laboratory may be maintained in a state of thorough efficiency, the object of the donor being to give every assistance and encouragement within the limits of the endowment to scientific workers. The laboratory (the affairs of which will be managed by a laboratory committee appointed by the managers of the institution) will be under the control of two directors, who will be aided in the work by competent assistants. The managers of the Royal Institution have appointed as directors Lord Rayleigh and Prof. Dewar. It is intended to open the laboratory for work by the middle of October. The trust deed provides that no person shall be admitted to the laboratory as a worker who has not already done original scientific work, or in the alternative, who is not, in the opinion of the laboratory committee, fully qualified to undertake original scientific research in pure or

physical chemistry; and that no person shall be excluded from admission by reason of his or her nationality or sex.

NERVOUS DISEASES AND MODERN LIFE.

THE *Century Magazine* for May contains an article by Dr. Philip Coombe Knapp, in which he claims that there is no definite scientific basis for the common assumption that nervous diseases are increasing and that they are more prevalent in America than elsewhere. The fact that relatively more people are in asylums for the insane than formerly is probably simply because a larger proportion of the insane are now cared for in asylums and the better methods keep them alive longer. The increase in deaths due to diseases of the brain is not so great as the increase in deaths from heart and kidney diseases. The relative increase of deaths from all these diseases is the corollary from the decrease in deaths from preventable causes—infection, filth, bad habits and the like.

The *a priori* argument that the conditions of modern life predispose to nervous disease is not very convincing to those familiar with the state of things in the past, when life, family and fortune were often in daily jeopardy. The energy and restlessness of the typical American may betray a lack of culture and refinement but it does not show physical degeneracy. The mean is dependent on the extremes and we find Americans the best athletes, whereas when we wish to see the most interesting cases of hysteric and nervous diseases we must go to Paris or Vienna. We might expect to find, and do find, in America good physical and mental traits, due to their origin from energetic emigrants and the admixture of races. As Dr. Knapp writes: "We should not then chatter glibly about the increased nervousness of our age, due to the greater demand which the conditions of modern life make upon the human brain. It is not a matter to be settled by a few phrases or by tables of very general and questionable statistics. We are by no means certain that there is any increased nervousness, and even if it do exist we do not know whether it is due to these greater demands or to injury or infection. It is also doubtful whether the conditions of modern life make as

great demands upon the brain as did the conditions of life in the past. Finally, without more evidence in its favor, we must regard the belief in the greater nervousness of Americans as an error."

GENERAL.

WE venture to call attention in this place to the advertisement of the publishers on page iii., asking for back numbers of this JOURNAL. It is a matter for congratulation that more copies have been sold than had been expected by the publishers, and it is a matter of editorial interest that subscribers who wish to complete their sets for binding should be able to secure the lacking numbers.

THE death is reported, by cablegram, of Dr. August Kekulé, professor of chemistry in the University of Bonn.

WE have already called attention to the seventy-ninth meeting of the Swiss Society of Naturalists, which meets at Zurich from the 2d to the 5th of August. Lectures have been arranged for the general meetings as follows: Prof. Kölliker on the 'Arrangement of the Microscopic Elements in the Cortex of the Brain;' Prof. Bamberger on 'Chemical Energy;' Prof. Henri Dufour on the 'Study of Solar Radiation in Switzerland;' Prof. Shröter on the 'Flora of Lakes.' Special papers will be read before fifteen different sections.

THE Imperial University of Kasan (Russia) announces the Lobatchefsky prize of 500 roubles to be awarded every three years for works on Geometry, 'those on non-Euclidian to have the preference.' Works in competition must be sent in before October 22, 1896 (old style). The prize will be adjudged October 22, 1897.

THERE will be held during the month of September a meeting of Austrian chemists who have had an academic education, in order to consider the formation of a society for the consideration of subjects that concern technical chemistry.

IT has been proposed, according to *Nature*, that some token of esteem be presented to Prof. N. Story-Maskelyne in recognition of his distinguished services to mineralogical science, and to commemorate his long connection with

the University of Oxford. The presentation is intended to take the form, if possible, of a portrait, and it is believed that contributions not exceeding £2 in amount will be sufficient for the purpose. A number of men of science, both at home and on the continent, have already promised their support. Contributions will be received by Prof. A. H. Green, F. R. S., or Prof. H. A. Miers, F. R. S., University Museum, Oxford.

THE New York *Evening Post* states that the well-known German anthropologist, Adolf Bastian, who has nearly reached his seventieth year, has gone on an exploration trip to the interior of China.

THE arrangements made by the local committee for the Liverpool meeting of the British Association ensure much pleasure for those able to attend. University College, St. George's Hall and the Public Museum offer excellent and convenient rooms for the meetings, and there are many places of scientific interest in Liverpool and its neighborhood which will be included in the excursions. Longer excursions will be made at the close of the meeting to the Isle of Man, to the English Lakes and to the Vyrury Water Works in Wales. Receptions will be given by the local committee and by Lord Derby, the Lord Mayor of Liverpool. Parties will be entertained by Mr. Gladstone at Hawarden, by the Duke of Westminster at Eaton Hall and by the Earl of Derby at Knowsley. Liverpool is unusually convenient for American men of science, who are always entertained with courtesy.

THE fiftieth anniversary number of the *Scientific American*, to be published this week, will be enlarged to about four times its usual size, and will contain, in addition to the prize essay 'On the progress of invention during the past fifty years,' a number of special articles and reviews of the progress of science and invention during the past fifty years; some of the principal subjects to be treated being the transatlantic steamship, naval and coast defense, railroads and bridges, the sewing machine, physics and chemistry, electrical engineering, progress of printing, the locomotive, iron and steel, phonograph, photography, tele-

graph, telephone, telescopes, the bicycle and the history of the *Scientific American*.

SIR ARCHIBALD GEIKIE, who, as we have already stated, will give before the Johns Hopkins University the first course of lectures under the George Huntington Williams Memorial, will begin the course in the latter part of April, 1897.

THE Department of Natural Science Teaching of the National Educational Association elected the following officers: President, Chas. Skeele Palmer Boulder, Colorado; Vice-President, Albert H. Tuttle, Charlottesville, Va.; Secretary, Irwin Leviston, Omaha, Neb.

MR. WILLIAM A. INGRAM, Secretary of the Board of Commissioners, has compiled a list of the publications of the Pennsylvania Geological Survey from 1874 to 1895, to which is added an index of the more important subjects treated in the volumes.

The *British Medical Journal* states that the exhibits in medicine and hygiene at the Berlin Industrial Exhibition are of special interest. As an example of these may be given the municipality building, which contains complete drainage ground plans of Berlin and the suburbs, plans and models of the pumping station, their machinery, etc., models of a warehouse and a dwelling house with complete drainage arrangements. A small fountain is fed by clear and innocuous water from the sewage farms, and near it are specimens of plants and cereals and vegetables grown on, and even otto of roses obtained from the sewage farms. Here too are the plans and drawings of the different Berlin water works; the pipe systems by which the houses are supplied; drawings, models and plans of municipal asylums and hospitals, of the municipal disinfecting institute, of the heating and ventilating apparatus in the municipal schools of the public bathing establishments, etc.

MR. F. W. EDRIAGE GREEN writes that it is proposed to form, in Great Britain, a society for the purpose of making researches in color blindness, instituting proper tests and preventing color-blind and defective-sighted men from acting in capacities in the marine and railway services for which they are physically unfitted.

He will be glad to hear from those who are interested in the subject and are willing to join the society. The subscription will be 5s. per annum.

Nature states that Mr. J. H. Maiden has been appointed Government Botanist and Director of the Botanic Gardens at Sydney, in succession to Mr. Charles Moore, who has recently retired, after a service, in these capacities, of nearly half a century.

ADVICES have been received from Tromsø, Norway, that Arnold Pike's steamer, *Victoria*, has arrived there after having visited the aeronaut, Herr Andrée, at Dane's Island. The erection of a balloon house had been begun, and Herr Andrée expected to be ready to start on his voyage toward the north pole early in July. Before starting, however, it was the intention of the aeronaut to test his balloon thoroughly by sending it up attached by ropes and by telephone to the steamer *Virgo*, which vessel conveyed Herr Andrée and his companions and their outfit to Spitzbergen. On the way back from Spitzbergen the steamer *Victoria* called at Advent Bay on June 29th, where it was learned that the members of the Martin-Conway party and of the Swedish Geer-Knorring expedition were well. At that time Advent Bay was full of ice. Despatches from Irkutsk announce that M. Hansen, the Norwegian trader, left that town on June 1st for the north of Siberia. His journey is primarily for trading purposes, but he will also inquire into the truth of the recent rumors regarding Dr. Nansen, and see if the store of provisions left by Baron Toll in the New Siberian Islands for Dr. Nansen is still intact. M. Hansen's mission had been confided to him by the Russian Imperial Geographical Society.

AFTER having published some fifty volumes in the series of 'Classics for Children,' it is time that Ginn & Co. should include a scientific selection. They have done well in choosing Gilbert White's *Natural History of Selbourne* and in securing an introduction from Prof. E. S. Morse. It would not be possible to place a better book in the hands of a boy of fourteen. Observers of nature, such as White, Thoreau and Audubon, seem to be lacking at the present time.

Biology has perhaps become so extended and complex that the amateur is discouraged, but, as has recently been suggested by correspondents of *Nature*, boys do not now take an interest in nature, and there is no large class from which naturalists may be supplied. The growth of cities, the preponderating interest in athletic sports, and the study of biology in the laboratory, have lead the schoolboy away from contact with nature. As Prof. Morse remarks, collecting still goes on, but stamps are a poor substitute for birds' eggs, butterflies, shells and the like. Under these conditions nothing could be more useful than a copy of *The Natural History of Selbourne* in every school and in every home.

A LARGE meteor is reported to have fallen in the small mining town of Santos Reis, Chihuahua, Mex. It made its descent at noon and was accompanied by a report louder than that made by a cannon. It struck the house of a miner and demolished the building, killing two children, and then buried itself in the ground to a great depth. The stone will be sent to the National Museum in the City of Mexico.

M. GABRIEL COLIN, formerly professor of physiology in the Veterinary School of Alfort, has died at the age of 71.

IN *The Journal of Mental Science* for July, Mr. John Turner gives some statistics dealing with hereditary insanity, based on 1,039 cases in the Essex County Asylum. It appears that daughters suffer most from insanity in the parents, but that insanity in the father is more likely to be hereditary. Thus 106 insane fathers had 117 sons and 138 daughters who were insane, and 236 insane mothers had 113 sons and 182 daughters who were insane. The statistics support Darwin's law of heredity, adult paternal characteristics being more liable to be transmitted to male offspring, and adult female characteristics to female offspring.

THE annual chart prepared by Mr. David T. Day, Chief of the Division of Mineral Resources, shows that the products of the United States for the year of 1895 were in nearly all cases in excess of those of the preceding year. The value of the products in 1894 was, however, less than in any year since 1887. The total

value of the metallic products in 1895 was \$270,453,979 and of non-metallic products \$340,-341,311. No tin was mined in 1895. The quantity of petroleum produced has remained nearly constant since 1892, but it appears that its value (?) has more than doubled.

THE U. S. Geological Survey has just issued a number of important bulletins, of which we hope to give later some account. These bulletins are as follows: No. 123, A dictionary of geographic positions, Henry Gannett, pp. 183. No. 124, Revision of the American fossil cockroaches with descriptions of new forms, H. S. Scudder, pp. 176. No. 125, The constitution of the silicates, pp. 109. No. 126, A mineralogical lexicon of Franklin, Hampshire and Hampden Counties, Mass., B. K. Emerson, pp. 180. No. 128, The Bear River formation and its characteristic fauna, Charles A. White, pp. 108. No. 129, Earthquakes in California, Charles D. Perrine, pp. 23. No. 131, Report of progress of the division of hydrography for the calendar years 1893 and 1894, pp. 126. No. 132, The disseminated lead ores of southeastern Missouri, Arthur Winslow, pp. 30. No. 133, Contributions to the Cretaceous paleontology of the Pacific coast; The fauna of the Knoxville beds, T. W. Stanton, pp. 132. No. 134, The Cambrian rocks of Pennsylvania, Charles D. Walcott, pp. 46.

THE Division of the Biological Survey of the Department of Agriculture has sent out a circular signed by Mr. T. S. Palmer, recommending that 'Bird Day' be observed in the schools. 'Arbor Day' has proved successful in arousing interest in the planting and preservation of trees, and it is urged that Bird Day would diffuse knowledge concerning our native birds and arouse a more general interest in bird protection. It is suggested that if it is deemed unwise to establish another holiday, or if it seem too much to devote one day in the year to a study of birds, the exercises of Bird Day might be combined with those of Arbor Day.

THE experiments on the visibility of the Röntgen rays by Dr. Gustav Brandes, briefly noticed in this JOURNAL, seem, according to the account in the *Sitzungsberichte der Berlin Akademie*, to have been carried out with much care

and to demonstrate that the rays call up a definite sensation of light. Dr. Brandes thinks it probable that the rays do not immediately effect the retinal cells, but probably cause fluorescence of the pigment.

IT is further reported from Berlin that Prof. Grunmach has been able to use the X-rays to determine calcifications resulting from pulmonary consumption. MM. Lortet and Genoud have reported to the Paris Academy that tuberculosis induced experimentally has been attenuated by exposure to the X-rays.

AFTER a very complete and painstaking investigation of the morphological characteristics of a series of double sulfates containing potassium, rubidium and cesium, Alfred E. Tutton, of Oxford, reaches the conclusion that there is no chemical union between the molecular constituents of double salts, but that there is merely aggregation in accordance with such a particular type of homogeneous structure as ensures that the constituents are always present in the same proportion.

DURING the year 1895 there were published in France 10,115 new books, of which 153 were in philosophy; 473 in political and social sciences; 1,141 in medicine; 267 in geography and anthropology; 76 in mathematics and 251 in natural science.

Garden and Forest states that the United States Consul at Havre, France, recently sent home some samples of new textile fabrics which were exhibited at the State Department in Washington. They were woven from the fibres of peat, which, as they proved, can be bleached to whiteness and will then take any dye. These fabrics are said to be especially advantageous from the fact that they have antiseptic qualities which will prevent them from harboring disease germs.

THE Hawaiian Congress recently passed an act by which every taxpayer in the island was compelled to register himself at the tax office, and, in addition to the usual entries according to the Bertillon system of identification, to leave in the registrar's book the imprint of his right thumb, in accordance with the recommendations of Mr. Francis Galton. The method of

identification was, however, regarded by many as an indignity fit only for criminals, and the law has been repealed.

UNIVERSITY AND EDUCATIONAL NEWS.

THE Archæological Museum of the University of Pennsylvania has received a gift of \$10,000 from Mr. B. N. Farren.

A FIRE occurred last week in the Boylston Chemical Laboratory of Harvard University. No serious damage was done to the building, but as the fire occurred in the storage room through self combustion of chemicals its cause should be carefully investigated in order that similar accidents may be avoided.

THE nineteenth session of the Martha's Vineyard Summer Institute was opened on July 13th, with an attendance of nearly 800 teachers and other pupils.

AT a meeting of the executive committee of the board of trustees of Cornell University in Ithaca, on June 15th, the chair of the principles and practice of veterinary surgery, zootomy, obstetrics and jurisprudence in the New York State Veterinary College was filled by the election of Walter Williams, D. V. S., professor of veterinary science and physiology in the Montana College of Agriculture and Mechanic Arts, and veterinarian to the Montana Agricultural Experiment Station.

DR. V. BUCHKA, professor of chemistry at the University of Halle, has resigned to take a position in the Imperial Patent Office. Dr. Karl Müller has been appointed professor of botany in the Technical High School, Berlin. Dr. J. v. Gerlach, professor of anatomy in the University of Erlangen, and Dr. Carl Claus, professor of zoology in the University of Vienna, have retired.

IT is stated that the total number of students on the books of the 21 Italian universities in 1895-96 is 21,161, showing a slight increase as compared with the previous year. Adding to these the students, male and female, of the institutes of higher education, a total of 23,962 is reached. Of these 6,736 are students of medicine. The most frequented university is that of Naples, which has 4,956 students, Turin coming next with 2,434; then come Rome with

1,911, Padua with 1,664, Bologna with 1,375, Pavia with 1,345, Palermo with 1,343, Genoa with 1,089, Pisa with 1,066, Catania with 890, and Messina with 551. All the others have fewer than 500, those of Urbino and Ferrara having fewer than 100.

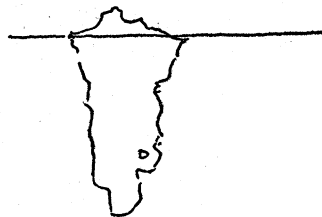
DISCUSSION AND CORRESPONDENCE.

AN INHERITED BLUNDER.

IT has been interesting to me for a number of years to notice how easily a blunder may be paraded and handed on from book to book in high honor, when a single careful thought would prove to any scientific person its absurdity.

The special case in mind is the conventional iceberg, as pictured in our school geographies and higher scientific texts. The first geography I ever saw had this physical monstrosity in it, and it is the common property of such texts up to date.

When we stop to think that an iceberg is merely a floating piece of ice, free to move in the mobile liquid water, we shall see at a glance that to be in stable equilibrium, the shortest dimension must be vertical. But notice the berg as shown in the conventional picture,



partly in diagram, as if seen through the water from the side. A berg as large as shown in some of these amusing cuts could not be kept in position by a whole fleet of great ships with grappling hooks and cables.

It is true that in some cases the artist has fitted blocks of stone into the ice near the bottom. But this has been done, very probably, to show the ice as an agent in transportation, and not in any case has he put ballast enough there to hold the berg down.

Here are some recent geography texts perpetuating this blunder. Appleton's Physical, p. 85, 1887; Butler's Physical, p. 79, 1887;